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REMARKS

Claims 1-22, and 53-58, as amended, remain herein. Claims 23-52 remain herein but are presently withdrawn from consideration.

Applicants appreciate the statements in the Office Action that claim 8 would be allowable if rewritten in independent form to include all of the limitations of the independent claim from which it depends.

Claim 19, depending from claim 15, is not the subject of any substantive rejection. Claim 19 is allowable for the same reasons as allowable claim 8, because claim 19 recites identical limitations as claim 8. Claim 5 has been amended as discussed below herein. Minor, editorial changes have been made in claims 1 and 6.

New claim 53, depending from claim 3, has been added, directed to ordering the fault list in so that the likelihood of faults increases with the number of contacts (vias) located where many signal lines cross over each other, where such contacts are likely to be open circuited due to defects in the contacts. See applicants' specification, page 26, describing

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contacts (via holes) where signal and power lines cross over each other and are locations of possible faults, as shown in Fig. 13. In contrast, Balachandran '830 considers only faults associated with bridging, whereas the fault in claim 53 is associated with via holes.

New claim 54 recites a method including limiting one of a type of fault and a position of a fault on the basis of a detection change resulting from a change of a detection condition. Balachandran '830 does not limit the type or position of a fault without reference to a fail log, whereas claim 54 does not require a fail log.

New claim 55 recites limiting one of a type of fault and a position of a fault on the basis of a fail log change resulting from a change of a detection condition.

New claim 56 recites limiting one of a type of fault and a position of a fault by utilizing a fail position conditioned to initiate failing when a detection condition is changed, thereby changing a fail log.

New claim 57 recites one of a type of fault and a position of a fault by judging a change of each detection condition when

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a plurality of detections are changed. Claim 57 does not limit the type of fault to the fail log alone. If the detection condition changes, the result of detection does not necessarily change.

New claim 58 recites one of a type of fault and a position of a fault by judging a change of a fail log in each detection condition when a plurality of detection conditions are changed. In claim 58, even when the detection condition changes, the detected result does not necessarily change. Such change is also included in consideration of limiting the type of fault and/or the position of the fault.

Minor edits for clarity have been made to the specification, and the term "measuring conditions" has been replaced by "testing conditions." See applicants' specification, page 40, line 20, describing changing the conditions in a detection device for detection of faults in a semiconductor integrated circuit, wherein such conditions are "testing conditions" and not "measuring conditions" because such a tester is known to test and not measure.

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1. Objections were stated to claims 1-22. Each informality has been amended, thereby mooting those objections. Claims 1 and 12 have been amended to delete the phrase "at least one of," and claim 6 has been amended to recite "arranging said possible faults as ordered possible faults and then weighting said ordered possible faults."

The Office Action suggests that independent claims 1 and 12 are so broad that a thorough search would be impossible. However, the Office Action cites Balachandran '830 in a §102(b) rejection and Rohrbaugh '651, Allan '179 and Agrawal '268 in a §103(a) rejection, thereby demonstrating that claims 1 and 12 are susceptible to search of the prior art.

2. Claims 5, 6, 10 and 11 were rejected under 35 U.S.C. §112, second paragraph. Claim 5 has been amended to moot the rejection, reciting "wherein said fault list is a weighted fault list with respect to all faults, and said fault coverage is a rate of fault coverage detected by the weighted fault list." See applicants' specification, page 31, second full paragraph,

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and page 32, second full paragraph. Reconsideration and withdrawal of the rejection are respectfully requested.

3. Claims 15 and 18-20 were rejected under 35 U.S.C. §112, second paragraph. The phrase "second detecting possible faults" is introduced in claim 15, worded to read "the fault detecting method additionally comprising second detecting possible faults," and therefore no antecedent basis is necessary. Reconsideration and withdrawal of the rejection are respectfully requested.

4. Claims 1 and 3 were rejected under 35 U.S.C. §102(e) over Balachandran U.S. Patent 6,618,830.

The presently claimed fault detecting method includes a fault list corresponding to at least one of (a) information identifying physical sites on a physical layout of a semiconductor integrated circuit where a possible fault is likely to occur, and (b) information required to reduce faults. This method is nowhere disclosed or suggested in the cited reference.

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The Office Action cites Balachandran '830 as disclosing a stuck-at-fault directory allegedly corresponding to applicants' fault list. However, the Balachandran '830 stuck-at-fault directory does not include physical layout information identifying physical sites on a physical layout of a semiconductor integrated circuit where a possible fault is likely to occur, as recited in applicants' claim 1.

The Office Action cites Balachandran '830, Abstract as allegedly disclosing a fault list including physical layout information identifying physical sites on a physical layout of a semiconductor integrated circuit where a possible fault is likely to occur. This is not correct, because Balachandran '830 does not disclose a "fault list" including physical layout information, but instead, describes physical layout information coming from other sources within the overall system for pruning a bridging diagnostic list. Balachandran '830, column 2, lines 16-25, describes the system as including a pattern generator for applying test patterns to generate resultant vectors; "the system also includes a stuck-at fault dictionary including a list of a plurality of nets of the circuit, each net having at

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least one resultant vector that indicates a potential stuck-at fault at the net." Later in the same paragraph, Balachandran '830 at lines 38-42, describes "[t]he system additionally includes a physical database including physical data associated with each of a plurality of nets of the circuit and a pruning module in communication with the diagnostic tool and the physical database. Balachandran '830 does not disclose the stuck-at fault list as including such physical data.

The Office Action also cites Balachandran '830, column 6, lines 15-30, which describes the "system" as including physical database 70 containing information representative of the physical layout of the circuit to be tested, including geographical coordinates of each net based on the physical dimensions of the circuit, wherein such coordinates describe length, width, depth and position. Balachandran '830 does not describe physical database 70 as having anything to do with the stuck-at fault list, nor does Balachandran '830 suggest that it would be beneficial to include physical layout information in the stuck-at fault list.

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The Office Action alleges that Balachandran '830, Fig. 2, step 220, corresponds to applicants' use of a fault list. However, step 220 refers to applying the stuck-at-fault dictionary to a circuit for detecting a fault. But, as described herein, the stuck-at-fault directory does not include physical layout information identifying physical sites on a physical layout, as recited in applicants' claim 1.

For the foregoing reasons, Balachandran '830 fails to disclose all elements of applicants' claimed invention, and therefore is not a proper basis for rejection under §102. And, there is no disclosure or teaching in Balachandran '830 that would have suggested the desirability of modifying any portions thereof effectively to anticipate or suggest applicants' presently claimed invention. Claim 3, which depends from claim 1, is allowable for the same reasons explained herein for claim 1. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

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5. Claims 2, 4-6, 9, 12-17 and 20 were rejected under 35 U.S.C. §103(a) over Balachandran '830, Rohrbaugh, et al. U.S. Patent 6,067,651; claims 7 and 18 were rejected under 35 U.S.C. §103(a) over Balachandran '830, Rohrbaugh '651 and Allan U.S. Patent 6,066,179; and claims 10, 11, 21 and 22 were rejected under 35 U.S.C. §103(a) over Balachandran '830, Rohrbaugh '651, Agrawal et al. U.S. Patent 5,257,268.

Claims 2 and 4-11, which depend from claim 1 are allowable for the same reasons as claim 1. Also, regarding claim 9, applicants submit that the Office Action is not correct in alleging that detecting defects is a step for using functional blocks in an IC, hence the reliability data is based on past use. There is no basis in the record for supporting such conclusion, and neither Balachandran '830 nor Rohrbaugh '651 discloses or suggests reliability data based on records of past use of cells or functional blocks, as recited in applicants' claims 9 and 20.

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None of Balachandran '830, Rohrbaugh '651 or Agrawal '268 discloses or suggests deletion of possible fault coverage to satisfy a special fault coverage, as recited in applicants' claims 10 and 21.

For the foregoing reasons, none of Balachandran '830, Rohrbaugh '651 or Agrawal '268 contains any teaching, suggestion, reason, motivation or incentive that would have led one of ordinary skill in the art to applicants' claimed invention. Nor is there any disclosure or teaching in any of these references that would have suggested the desirability of combining any portions thereof effectively to anticipate or suggest applicants' presently claimed invention. Claims 2, 4-7, 9-10 which depend from claim 1, are allowable for the same reasons explained herein for claim 1, and claims 12-18 and 20-22, which depend from claim 11, are allowable for the same reasons explained herein for claim 11. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

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All claims 1-22, and 53-58 are now proper in form and patentably distinguished over all grounds of rejection stated in the Office Action. Accordingly, allowance of all claims 1-22, and 53-58 is respectfully requested.

Should the Examiner deem that any further action by the applicants would be desirable to place this application in even better condition for issue, the Examiner is requested to telephone applicants' undersigned representatives.

Respectfully submitted,

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